LAPINA, Nina Nikolayevna; KULIKOV, M.V., red.; IONINA, I.N., vedushchiy red.; YASHCHURZHINSKAYA, A.B., tekhn.red.

[Brachiopods of Carboniferous sediments in the Ural Mountain portion of Perm Province] Brakhiopody kamennougol'nykh otlozhenii Permskogo Peiural'ia. Leningrad, Gostoptekhizdat, 1957. 132 p. (Leningrad. Vsesoiuznyi neftianoi nauchno-issledovatel'skii geologorazvedochnyi institut. Trudy, no.108). (MIRA 16:8)
(Perm Province—Brachiopoda, Fossil)

TSYRLINA, Vera Borisovna; IONINA, I.N., vedushchiy red.; KULIKOV, M.V., red.; GENNAD'YEVA, I.M., tekhn.red.

[Devonian sediments in the Chusovaya basin, the Kama Valley portion of Perm Province, and the Ufa Plateau] Devonskie otlozheniia basseina reki Chusovoi, Permskogo Prikam'ia i Ufimskogo plato. (Leningrad. Vsesoiuznyi neftianoi nauchno-issledovatel'skii geologorazvedochnyi institut. Trudy, no.127). (MIRA 16:8)
(Chusovaya Valley--Geology, Stratigraphic)
(Perm Province--Geology, Stratigraphic)
(Ufa Plateau--Geology, Stratigraphic)

KULIKOV, M.V.; ZHAMOYDA, A.I.

Vladimir Dom'ianovich Fomichev, 1899-1965; an obituary.
Paleont. zhur. no.4:111-112 '65. (MIRA 19:1)

KULIKOV, M.V.

Cutting-off lathe tool. Mashinostroitel' no.5:25 My '65. (MIRA 18:5)

FEDOROV, V.V.; KULIKOV, M.Yu.

Catch of Lampanyctus jordani Gilbert in the southeastern part of the Bering Sea. Dokl. AN SSSR 157 no.5:1243-1244 Ag '64. (MIRA 17:9)

1. Tikhookeanskiy institut rybnogo khozyaystva i okeanografii. Predstavleno akademikom Ye.N. Pavlovskim.

KULIKOV, N.; OLEKSA, P.M.; KATSIN, I.S.; OS'MAGA, I.I.

Eliminate excessive load testing of bridge cranes. Metallurg 10 no.6:34 Je '65. (MIRA 18:6)

1. Glavnyy mekhanik Nizhne-Tagil'skogo kombinata (for Kulikov). 2. Glavnyy mekhanik Donetskogo metallurgicheskogo zavoda (for Oleksa). 3. Starshiy inzh. Otdela glavnogo mekhanika po kranam Donetskogo metallurgicheskogo zavoda (for Katsin). 4. Pomoshchnik nachal'nika martenovskogo tsekha po oborudovaniyu Donetskogo metallurgicheskogo zavoda (for Os'maga).

KULIKOV, N.A.

A vitreous plastic condensor for roving machines. Tekst. prom. 15 no.6:43 Je '55. (MLRA 8:7)

1. Starshiy master lentochno-rovnichnogo tsekha Voronezhskoy kordnoy fabriki.
(Spinning machinery)

KULIKOV, N. D. (Co-author)

See: RUSETSKIY, S. G.

Rusetskiy, S. G. and Kulikov, N. D. "The problems of karakul-raising sovkhozes in the struggle against dry periods," Karakulevodstvo i zverovodstvo, 1949, No. 2, p. 19-21.

SO: U-3736, 21 May 53, (Letopis 'Zhurnal 'nykh Statey, No. 17, 1949).

IULIOV, N. L.

IULIOV, N. L. "The procurement of coarse feed as the most important task of the karakul breeding state farms," Karakulevodstvo i zverovodstvo, 1949, No. 3, -. 12-16

So: U-5240, 17, Dec. 53, (Letopis 'Zhurnal Statey, No. 25, 1949).

KULIKOV, N.F.

Practices in controlling yarn breakage. Tekst.prom. 20 no.5:53-55 My '60. (MIRA 13:8)

1. Zaveduyushchiy tkatskim proizvodstvom Shuyskoy Ob"yedinennoy fabriki.

(Textile machinery)

MANUKYAN, A.A.; GLUSHKOV, V.P.; SHVEDKOVA, V.M.; SVIRIDOVA, Z.P.; CHEBOTAREVA, Ye.A.; SHUMILIN, V.I.; PUDINA, K.V.; BRAGINA, N.M.; LUTSKAYA, Ye.Ye.; KODACHENKO, A.S.; KOSOVA, V.A.; MOKLYARSKIY, B.I.; GRECHIKHIN, A.A.; KULIKOV, N.I.; RYDVANOV, N.F.; BEL'CHUK, A.I.; VINTSER, Yu.I.; ROZENTAL', Ye.I.; BELOUS, T.Ya.; SIDOROV, V.F.; ZHDANOVA, L.P.; ALEKSANDROVSKAYA, L.I.; KOVAL', V.V.; KHAVINSON, Ya.S., glavnyy red.; SOKOLOV, I.A., zam.glavnogo red.; ALEKSEYEV, A.M., red.; ARZUMANYAN, A.A., red.; BELYAKOV, A.S., red.; BECHIN, A.I., red.; VARGA, Ye.S., red.; LEMIN, I.M., red.; LYUBIMOVA, V.V., red.; SKOROV, G.Ye., red. V redaktirovanii uchastvovali: SHAPIRO, A.I., red.; TATISHCHEV, S.I.. KOVRIGINA, Ye., tekhn.red.

[Economic conditions of capitalistic countries; review of business conditions for 1958 and the beginning of 1959] Ekonomicheskoe polozhenie kapitalisticheskikh stran; kon"iunkturnyi obzor za 1958 g. i nachalo 1959 g. Moskva, Izd-vo "Pravda," 1959. 127 p. (Prilozhenie k zhurnalu "Mirovaia ekonomika i mezhdunarodnye otnosheniia," no.8, avgust 1959 g.) (MIRA 12:9)

1. Akademiya nauk SSSR. Institut mirovoy ekonomiki i mezhdunarodnykh otnosheniy. 2. Kollektiv sotrudnikov kon"yunkturnogo sektora Instituta mirovoy ekonomiki i mezhdunarodnykh otnosheniy AN SSSR (for Glushkov, Shvedkova, Sviridova, Chebotareva, Shumilin, Pudina, Bragina, Lutskaya, Kodachenko, Kosova, Moklyarskiy, Grechikhin, Kulikov, Rydvanov, Bel'chuk, Vintser, Rozental', Belous, Sidorov, Zhdanova, Aleksandrovskaya, Koval'). (Economic conditions)

KULIKOV, N.I., inzh.

Diaphragm pump. Trakt. i sel'khozmash. no.5:47-48 My '59.
(MIRA 12:6)

1.Vsesoyuznyy nauchno-issledovatel'skiy institut sel'skokhozyaystvennogo mashinostroyeniya.
(Pumping machinery)

KULIKOV, N.I., assistent

[Torsion of a compartment with two hatchways] Skruchivania otseka s dvumia liukami. Gor'kii, GIIVT, 1961. 19 p. (Gorkiy. Institut inzhenerov vodnogo transporta. Trudy, no.33). (MIRA 15:5)

(Bulkheads (Naval architecture))
(Strains and stresses)

KULIKOV, N.I., mladshiy nauchnyy sotrudnik

Structural characteristics of the machines of foreign make.
Zashch. rast. ot vred. i bol. 4 no.5:50-52 S-O '59. (MIRA 16:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sel'skokho-
zyaystvennogo mashinostroyeniya.
(Spraying and dusting equipment)

MANUKYAN, A.A.; RYDVANOV, N.F.; BELOUS, T.Ya.; SVIRIDOVA, Z.P.; CHEBOTAREVA, Ye.A.; SHUMILIN, V.I.; PUDINA, K.V.; LUTSKAYA, Ye.Ye.; BRAGINA, N.M.; SANDAKOV, V.A.; MUSSO, S.; ZABLOTSKAYA, A.I.; VDOVICHENKO, D.I.; MIRKINA, I.Z.; MORENO, I.; SIDOROV, V.F.; FOKLYARSKIY, B.I.; GRECHIKHIN, A.A.; KOSOVA, V.A.; KULIKOV, N.I.; ZHDANOVA, L.P.; ROZENTAL', Ye.I.; PETRANOVICH, I.M.

[Economic conditions of capitalist countries; survey of economic trends in 1961 and the beginning of 1962] Ekonomicheskoe polozhenie kapitalisticheskikh stran; kon'iunkturnyi obzor za 1961 g. i nachalo 1962. g. Moskva, Izd-vo "Pravda," 1962. 157 p. (MIRA 16:9)

1. Sotrudniki kon"yunkturnogo sektora Instituta mirovoy ekonomiki i mezhdunarodnykh otnosheniy AN SSSR.
(Economic history)

KULIKOV, N.I.

Control of loose smuts. Zashch. rast. ot vred. i bol. 8 no.10:54 O '63. (MIRA 17:6)

KULIKOV, N.I., mladshiy nauchnyy sotrudnik

Mechanized disinfection of grain with hot water. Zashch.rast. ot vred. i bol. 4 no.1:22-23 Ja-F '59. (MIRA 12:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sel'skokhozyaystvennogo mashinostroyeniya.
(Grain--Disinfection)

KULIKOV, N.I.

New pesticides. Zashch. rast. ot vred. i bol. 8 no.12:48-49 D '63. (MIRA 17:3)

KULIKOV, N.I.

Machines for seed disinfection. Zashch. rast. ot vred. i bol. 9 no.3:50-51 '64. (MIRA 17:4)

KULIKOV, N.I., inzh.

Seed disinfecting machine. Trakt. i sel'khozmash. 33 no.11:46 N '63. (MIRA 17:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sel'skokhozyaystvennogo mashinostroyeniya.

[redacted]

[redacted] t bol. 9
(MIRA 18:2)

ACC NR: AR6028504 (N) SOURCE CODE: UR/0398/66/000/005/A025/A025

AUTHOR: Kulikov, N. I.

TITLE: Characteristics of the calculation for twisting in ships with large hatch openings

SOURCE: Ref. zh. Vodnyy transport, Abs. 5A129

REF SOURCE: Tr. Gor'kovsk. in-ta inzh. vodn. transp., vyp. 65, 1965, 3-27

TOPIC TAGS: shipbuilding engineering, cargo ship, torsion strength, torsion stress, stress analysis, stress concentration, stress distribution, full scale test, test method

ABSTRACT: The question concerning the twisting of a ship can be answered by using V. V. Davydov's method, but the binding of the transverse cross-overs must be taken into consideration. It is assumed that the compartments have rectangular shapes with two planes of symmetry. An isolated compartment acted upon by twisting moments applied to the ends, is considered. The resultant stresses when the ship's hull is twisted are determined by summing the stresses at similar points during free twisting and during constrained twisting. The stresses computed by theoretical means are compared with those measured during the twisting of the hull of a cargo motorship of the Volgo-Don-1 type, which is 135.0 m long, 16.5 m wide, and has a height of side of

UDC: 629.12:624.07

Card 1/2

ACC NR: AR6028504

5.5 m. A comparatively close similarity of obtained stresses is established. The divergence is not in excess of 20 to 25% at points of greatest stress. 6 figures. Bibliography of 1 title. Ye. Sukacheva. [Translation of abstract]

SUB CODE: 13,20

Card 2/2

ACC NR: AR7005025 (N) SOURCE CODE: UR/0398/66/000/007/A017/A017

AUTHOR: Kulikov, N. I.

TITLE: Torsional rigidity of thin-walled structures

SOURCE: Ref. zh. Vodnyy transport, Abs. 7A92

REF SOURCE: Tr. Gor'kovsk. in-ta inzh. vodn. transp., vyp. 65, 1965, 28-32

TOPIC TAGS: torsion stress, thin shell structure, ship, ship component, model, thin walled

ABSTRACT: The problem of torsional rigidity is solved by the method of V. V. Davydov, according to which a spatial structure is broken down into individual flat elements, loaded not only with external stresses, but also with interacting forces. First, isolated section under the action of torque is observed, then the same section loaded with compression moments along its end profile. The sum of the action of both factors makes it possible to determine the actual angles of torsion of the section which is a part of the ship's hull. An example is given of the calculation of the angle of torsion of a model for which the angles of torsion

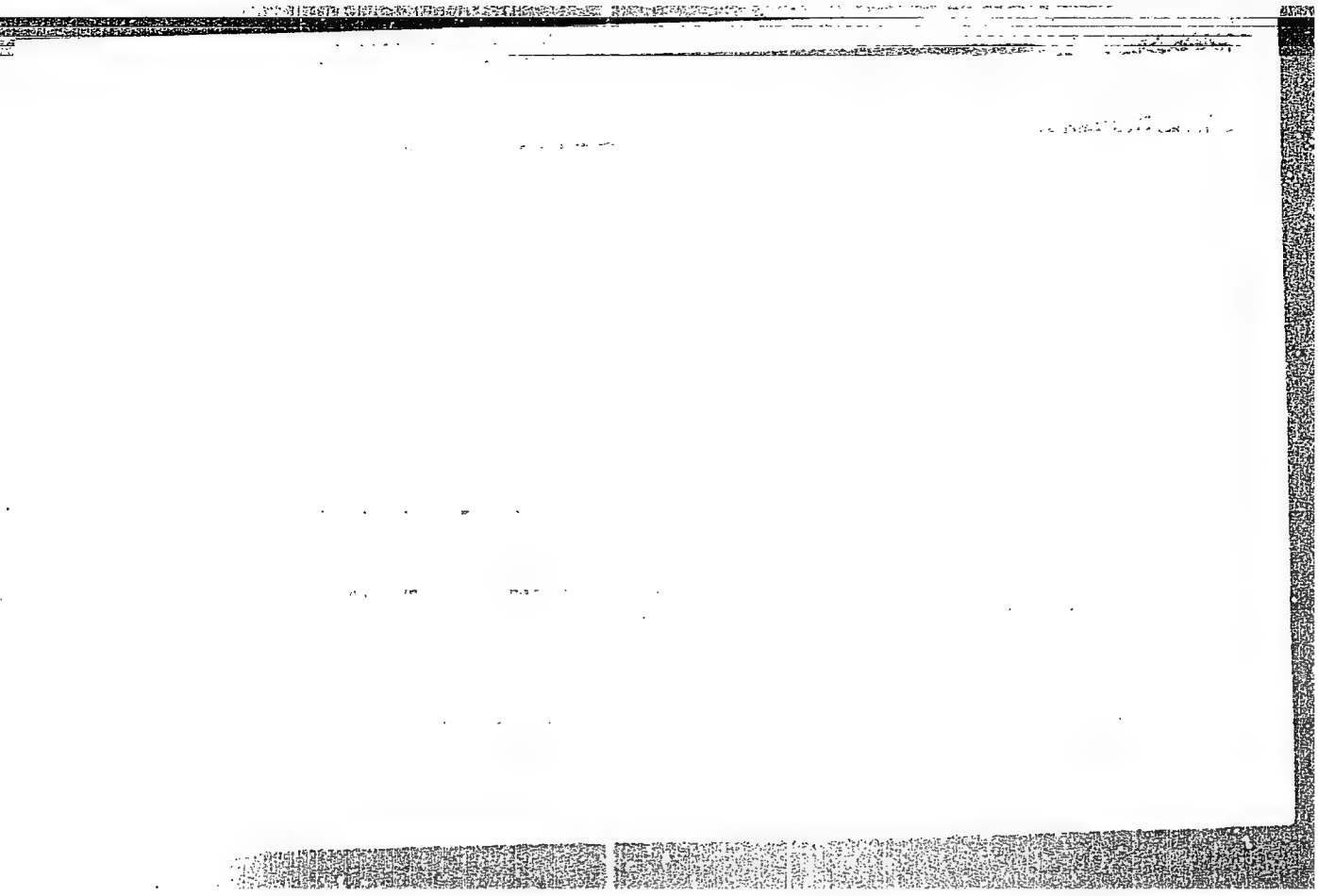
Card 1/2 UDC: 629.12:624.02/09

ACC NR: AR7005025

have been experimentally determined. Comparison of experimental data and of data obtained by the method proposed and the Vlasov-Umanskiy method showed that the results do not deviate by more than 10%. Orig. art. has: 3 figures. [GC]
[Translation of abstract]

SUB CODE: 13, 20/

Card 2/2



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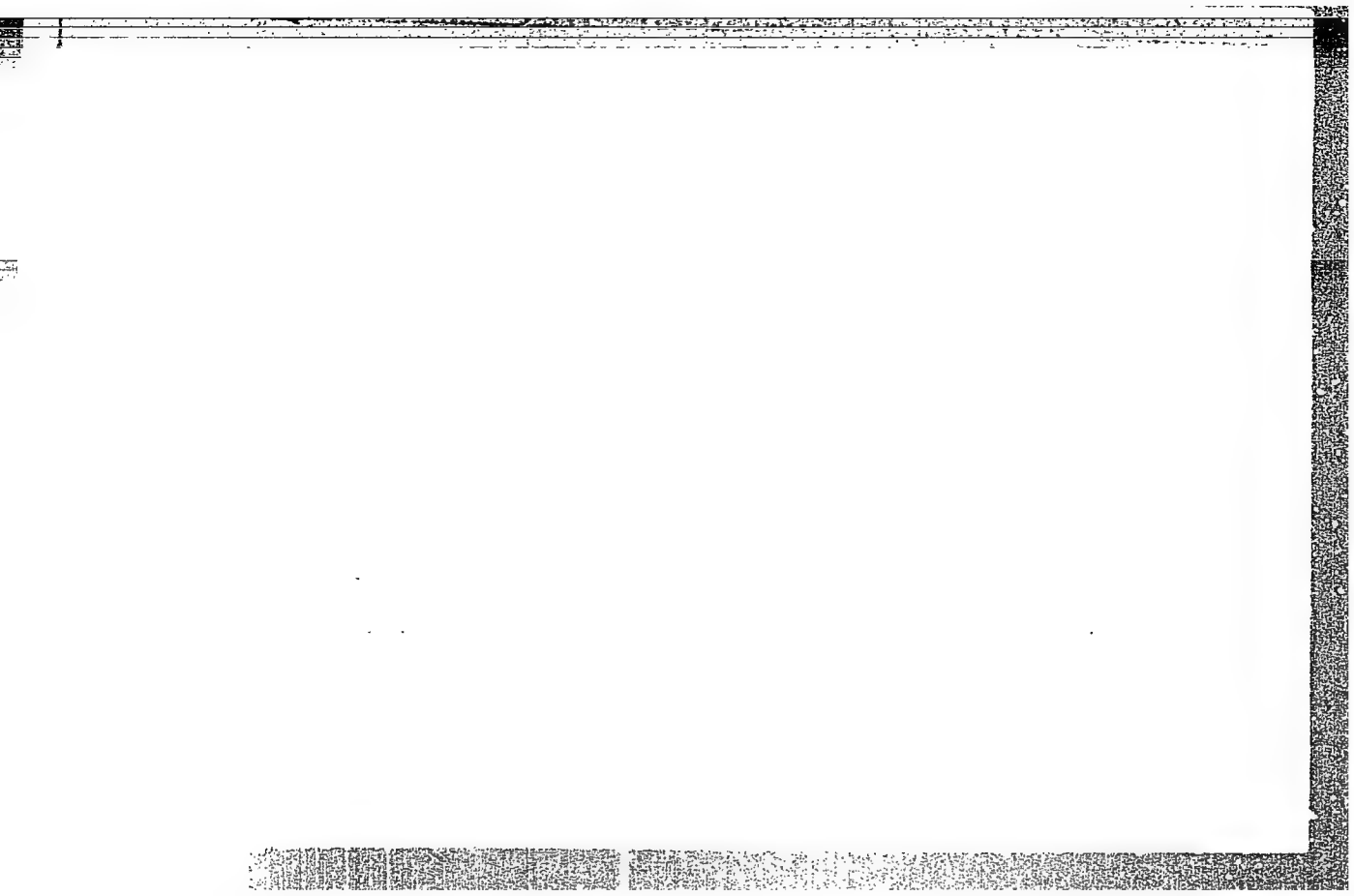

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[illegible], N. N., engr. Cand. Tech. Sc.

Dissertation: "Theory of Free-Running Wedge Mechanisms." Sci Res Automobile and Automative Inst - "NAMI" 3 Dec 47.

SO: Vechernyaya Moskva, Dec, 1947 (Project #17836)

KULIKOV, ENG. N.K.

Automobiles - Transmission Devices

Some problems concerning the theory of impulse transmission utilizing tangential forces of inertia. Eng. N. K. Kulikov. (Trudy) NAMI No. 48 1947.

9. Monthly List of Russian Accessions, Library of Congress, September, 1952~~1950~~, Unclassified.

KULIKOV, N.K., inzhener.

Theory of free-wheel roller mechanisms. Vest.mash.27 no.2:13-17 '47. (Roller bearings) (MLRA 9:4)

KULIKOV, Nikolay Konstantinovich.

Academic degree of Doctor of Technical Sciences, based on his defense 27 December 1952, in the Council of the State Order of Labor Red Banner Sci Res Automobile and Auto-Motor Institute of his dissertation entitled: "Theory of the Dynamics and Fuel Economies in an Automobile in the Process of Starting."

Academic degree and/or title: Doctor of Sciences

SO: Decisions of VAK, List no. 13, 4 June 55, Byulleten' MVO SSSR, No. 15, Aug 56, Moscow, pp. 5-24, Uncl. JPRS/NY-537

KOLIKOV, N.K.

Gas and Oil Engines

Optimum characteristic of an automobile engine working under sharply changing conditions. Avt. trakt. prom. No. 4, 1952.

9. Monthly List of Russian Accessions, Library of Congress, August, 1952 1953. Unclassified.

KULIKOV, K. K.

Automobile Engineering Research

Cal culating the dynamic and economic indexes of an automobile with gradual transmission during acceleration. Avt. trakt. prom. no. 5, 1952

Monthly List of Russian Accessions, Library of Congress, October 1952, Unclassified

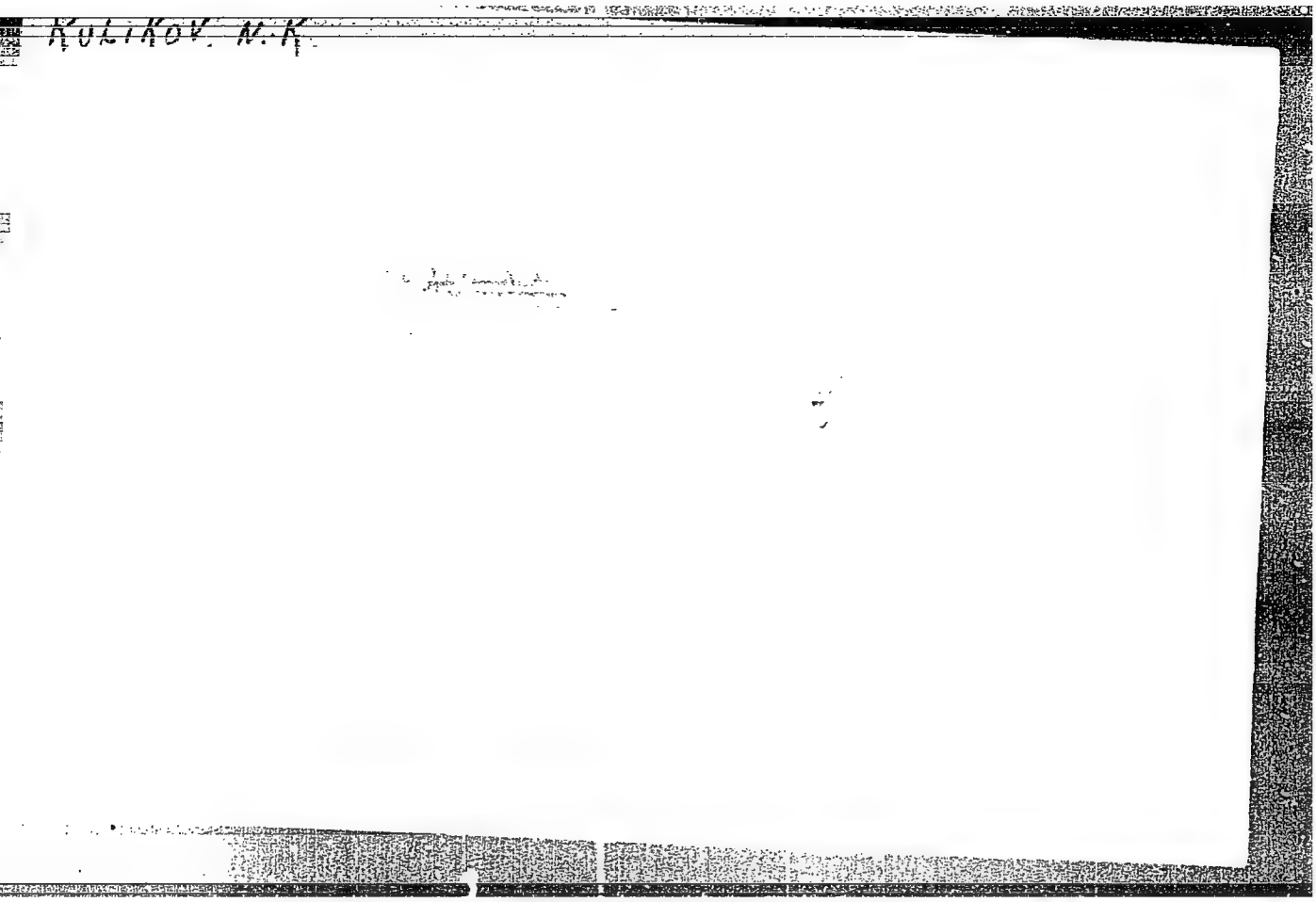
1. KULIKOV, N. K.

2. USSR (600)

4. Automobiles - Motors

7. Evaluating the pick-up power of an automobile engine. Avt. trakt. prom. no. 10, 1952

9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.



KULIKOV, N. K.

PA 241T68

USSR/Mathematics - Nonlinear Differential Equation Nov/Dec 52

"Determining the Limits of the General Solution of a Nonlinear Second-Order Differential Equation," N. K. Kulikov, Moscow

"Priklad Matemat i Mekhan" Vol 16, No 6, pp 729-734

Qualitative methods of the theory of differential eqs permit one in many cases to establish the fact of the existence of the limit of the general soln of nonlinear differential eqs and to investigate their properties as connected with the stability of motion. In the present article the

241T68

author shows how to find an exact quantitative connection between displacement and time for stationary forced oscillations of certain nonlinear systems. Considers the following eq: $x' + F(x) = M \cdot \sin pt$.

(The journal editors notify that the above article is erroneous, ibid., Vol.17, No.2, pp 260, 1953)

241T68

PULIKOV, . . K.

Issledovanie dinamiki i ekonomiki avtomobilia [Research on the dynamics and economics of automobiles]. Moskva, Mashgiz, 1953. 68 p.

SO: Monthly List of Russian Accessions, Vol. 6 No. 11 February 1954

KULIKOV, N. K.

Automobiles - Motors

Determining optimum processes of an internal combustion engine with hydraulic torque converter. Avt. trakt. prom. No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

KULIKOV, M. K.

Hydraulic Machinery

Calculation of single-phase hydrodynamic transformer governed by a maximal efficiency coefficient. Avt. trakt. prom. No. 3, 1953.

Monthly List of Russian Accessions, Library of Congress, June 1953. Uncl.

KULIKOV, M.K., kandidat tekhnicheskikh nauk.

Wedged mechanism of a free-running gear. Avt.trakt.prom. no.6:17-19 Je '53. (MLRA 6:6)

1. Nauchnyy avtomotornyy institut. (Gearing)

KULIKOV, N.K., kandidat tekhnicheskikh nauk.

Hydrostatic drive of an automobile. Avt.trakt.prom. no.12: 23-24 D '54. (MLRA 8:2)
(Automobiles--Transmission devices)

KULIKOV, N.K., kandidat tekhnicheskikh nauk; OSIPYAN,A.V., kandidat tekhnicheskikh nauk, redaktor; KOZLOVSKIY,I.S., kandidat tekhnicheskikh nauk, redaktor; BRILING,M.R., doktor tekhnicheskikh nauk, professor, redaktor; KALISH,G.G., doktor tekhnicheskikh nauk,professor, redaktor; PEVZNER,Ya.M., doktor tekhnicheskikh nauk, professor, redaktor; KHRUSHCHEV,M.M., doktor tekhnicheskikh nauk, professor redaktor; RAMAYYA,K.S., doktor tekhnicheskikh nauk, redaktor; LIPGART,A.A., redaktor; PRYADILOV, V.I., kandidat tekhnicheskikh nauk, redaktor; ROZANOV,V.G., kandidat tekhnicheskikh nauk, redaktor; CHISTOZVONOV,S.B., inzhener, redaktor; ZIL'BERBERG,Ya.G., inzhener, redaktor; UVAROVA,A.F., tekhnicheskiy redaktor.

Wedged freewheeling clutches. Trudy NAMI no.75:3-67 '54.
(MIRA 8:7)

1. Konstruktor Nauchno-issledovatel'skogo avtomotornogo instituta (for Lipgart)

(Clutches (Machinery))

KULIKOV, N.K., doktor tekhnicheskikh nauk; OSIPYAN, A.V., kandidat tekhnicheskikh nauk, redaktor; KOZLOVSKIY, I.S., kandidat tekhnicheskikh nauk, redaktor; ZIL'BERBERG, Ya.G., inzhener, redaktor; BRILING, N.R., doktor tekhnicheskikh nauk, professor, redaktor; KALISH, G.G., doktor tekhnicheskikh nauk, professor, redaktor; PEVZNER, Ya.M., doktor tekhnicheskikh nauk, professor, redaktor; KRUSHCHEV, M.M., doktor tekhnicheskikh nauk, professor, redaktor; RAMAYYA, K.S., doktor tekhnicheskikh nauk, professor, redaktor; LIPGART, A.A., professor, redaktor; PRYADILOV, V.I., kandidat tekhnicheskikh nauk, redaktor; ROZANOV, V.G., kandidat tekhnicheskikh nauk, redaktor; CHISTOZVONOV, S.B., inzhener, redaktor; YEGORKINA, L.I., redaktor; UVAROVA, A.F., tekhnicheskiy redaktor; BROKSH, V.V., inzhener.

[Performance of automobile wheels] Rabota avtomobil'nogo kolesa. (Moscow, Gosudarstvennyi nauchno-issledovatel'skii avtomobil'nyi i avtomotornyi institut. [Trudy] no.77) 1955 36 p. (MLRA 9:4)

1. Chlen-korrespondent AN SSSR (for Briling).
(Automobiles--Wheels)

KULIKOV, K.K., doktor tekhn.nauk, prof.

Determining fuel consumption of motor vehicles. Nauch.dokl.vys. shkoly; mash.i prib. no.2:72-74 '58. (MIRA 12:10)

1. Predstavleno kafedroy "Traktorostroyeniye i dvigateli vnutrennego sgoraniya" Stalingradskogo mekhanicheskogo institut.
(Motor vehicles--Fuel consumption)

12(2)
AUTHOR: Kulikov, N.K. SOV/159-58-3-5/31

TITLE: The Determination of the Calculation Factor of the Rotating Masses of an Automobile

PERIODICAL: Nauchnyye doklady vysshey shkoly, Mashinostroyeniye i priborostroyeniye, 1958, Nr 3, pp 30-33 (USSR)

ABSTRACT: According to the theory of the automobile (works of Zimelev, 1957 and Chudakov, 1950, and others), the calculation factor of the rotating masses has a considerable influence on the acceleration of an automobile. For an automobile equipped with a conventional transmission this factor is determined by the following formula:

$$\delta = 1 + \frac{J_m G}{G} \cdot \frac{i_K^2 i_0^2 \eta_m}{r_K^2} + \sum \frac{J_K G}{G r_K^2}$$

Card 1/3

whereby G - is the weight of the automobile; J_m - the flywheel inertia moment; i_0 and i_K are the gear ratios of the differential and the transmission; r_K - is the rolling radius of the wheel; J_K - is the inertia moment of the wheel; η_m - is the efficiency factor of the transmission; g - is the gravity accelaration. The calculation factor of the rotating masses depends on the energy losses in the power transmission. These losses are calculated by means of the efficiency factor of the power transmission. Thereby the efficiency factor accounts for energy losses in all power transmission mechanisms located between the engine and the driven wheels. Presently it is assumed that the factor of calculating the rotating masses does not depend on the energy losses in the driven wheels. The author proves in this article that such a dependence is existing, whereby he derives a more accurate formula, resulting in a reduction of the calculation factor of rotating masses compared with the aforementioned formula

SOV/150-58-3-5/31

The Determination of the Calculation Factor of the Rotating Masses of an Automobile

$$\delta = 1 + \frac{J_{mg}}{G} \cdot \frac{i^2_K i^2_0 \eta_{tr} \eta_{kw}}{r^2_K} + \frac{\Sigma}{G} \left(\frac{J_{K_2} \eta_{kw}}{r^2_K} + \frac{J_{K_1}}{r^2_K} \right)$$

The author presents a table in which he compares the factors for the different gear ranges of the "Moskvich", "Pobeda", ZIL-100, ZIL-150, ZIL-151, GAZ-51 and MAZ-200. The comparison shows that the calculation factor of the rotating masses is 15-18% lower in respect to other calculation methods. This fact must be taken into consideration for practical calculations and for research work. There are 1 table and 4 Soviet references. **This article was presented by the**

Kafedra "Traktorostroyeniye i dvigateli vnutrennego sgoraniya" Stalingradskogo mekhanicheskogo instituta (Chair "Tractor Building and Internal Combustion Engines" of the Stalingrad Institute of Mechanics)

SUBMITTED: March 5, 1958

Card 3/3

ASSOCIATION: STALINGRADSKIY MEKHANICHESKIY INSTITUT

AUTHOR: Kulikov, N.K. [illegible]

SOV/140-58-4-16/30

TITLE: A New Method for the Solution of Non-Linear and Linear Differential Equations With Variable Coefficients. Determination of Periodic Solutions (Novyy metod resheniya nelineynykh i lineynykh s peremennymi koeffitsiyentami uravneniy v polnykh proizvodnykh. Nakhozhdeniye periodicheskikh resheniy)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, 1958, Nr 4, pp 140-152 (USSR)

ABSTRACT: The solution is sought, not as it is usual in the form $x = x(t)$, but in the implicit form $\varphi(x,t) = 0$ or $\varphi(x) = f(t)$. Here a quite definite form of the function $\varphi(x,t)$ is proposed, depending on n (= degree of the differential equation) unknown functions which have to be determined from a system of differential equations. By an example the author shows that for an approximate solution of the system the approximate solution of the initial equation becomes better than the usual first approximation. The author does not investigate whether this occurs in general.
The author reviewed about his method in 1957 in seminars at Stalingrad and Moscow.
There are 6 Soviet references.

Card 1/2

A New Method for the Solution of Non-Linear and Linear Differential Equations With Variable Coefficients. Determination of Periodic Solutions. SOV/140-58-4-16/30

ASSOCIATION: Stalingradskiy mekhanicheskiy institut (Stalingrad Mechanical Institute)

SUBMITTED: January 3, 1958

Card 2/2

SOV-113-58-9-11/19

AUTHOR: Kulikov, N.K., Doctor of Technical Sciences

TITLE: The Calculation of the Coeficient of the Computation of the Rotating Masses of the Automobile (Vychisleniye koeffitsiyenta ucheta vrashchayushchikhsya mass avtomobilya)

PERIODICAL: Avtomobil'naya promyshlennost', 1958, Nr 9, pp 31-33 (USSR)

ABSTRACT: Existing formulae on the computation coefficient of the rotating masses of automobiles do not consider the energy losses in the driving wheels of cars with resilient wheels. This means an inaccuracy of 15 to 18% in these formulae. Not only the losses in the transmission but also those in the wheels must be considered. Relevant data on 8 Soviet passenger cars and trucks is tabulated (Table 1).
There is 1 table and 3 Soviet references.

ASSOCIATION: Stalingradskiy mekhanicheskiy institut (The Stalingrad Mechanical Institute)

1. Automobiles--Design 2. Rotating structures--Mathematical analysis

Card 1/1

AUTHOR: Kulikov, N.K., (Stalingrad) SOV/24-58-11-25/42

TITLE: The Power and Force Balance Equations for Self-propelled Vehicles (Ob uravneniyakh moshchnostnogo i tyagovogo balansov samodvizhushchikhsya ekipazhey)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 11, pp 103 - 105 (USSR)

ABSTRACT: The efficiencies of the driving and idling wheels are considered with due allowance for yield in the tyres, slip on the road surface (due to tyre yield), tyre adhesion, etc. It is shown that the losses in the wheels can, in some circumstances, be as high as those in the transmission. There are 3 Soviet references.

SUBMITTED: February 24, 1958

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SOV/113-58-12-6/17

AUTHOR: Kulikov, N.K., Doctor of Technical Sciences

TITLE: A Dynamic Series of Gear Ratios of Gear Boxes (Dinamicheskiy ryad peredatochnykh chisel korobki peredach)

PERIODICAL: Avtomobil'naya promyshlennost', 1958, Nr 12, pp 19-22 (USSR)

ABSTRACT: The gear ratio of an automobile shou'd correspond to a dynamic series, to ensure the highest possible-pick up of the engine. The selection of the gear ratios, according to a dynamic series, increases the economical properties of an automobile by a more efficient use of the higher gears. For a two-step gear box a ratio $\frac{i_1}{i_2} = 1.8 : 2$ is recommended. For a three-step gear box the ratio is $\frac{i_1}{i_2} = 2$; $\frac{i_2}{i_3} = 1.5$ or less. The gear ratios of the automobiles of the Gor'kovskiy avtozavod (Gor'kiy Automobile Plant) and of the automobile ZIL-110 almost correspond to a dynamic series. In case of a four-step gear box, the first gear is used in difficult road sections. Only the three other gears are used for ac-

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celeration, and should be selected according to a dynamic series. In five-step gear boxes, the recommended ratios are: $\frac{i_4}{i_5} = \frac{4}{3}$; $\frac{i_3}{i_4} = \frac{3}{2}$; $\frac{i_2}{i_3} = 2$. During designing of a new automobile, the recommended ratios which would increase the power of the engines should be considered.
There are 4 graphs and 5 Soviet references.

ASSOCIATION: Stalingradskiy mekhanicheskiy institut (Stalingrad Mechanical Institute)

Kulikov, N.K.

25(2) PHASE I BOOK EXPLOITATION SOV/2779

Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Leningradskoye oblastnoye pravleniye

Gidrodinamicheskiye peredachi (Hydrodynamic Transmissions) Moscow, Mashgiz, 1959. 245 p. (Series: Its: Trudy, vyp. 52) 3,000 copies printed.

Ed.: V.P. Gur'yev, Candidate of Technical Sciences, Docent; Tech. Ed.: L.V. Shch-tinina; Managing Ed. for Literature on Machine-Building Technology (Leningrad Division, Mashgiz): Ye.P. Naumov, Engineer.

PURPOSE: This book is intended for engineering and technical personnel in the field of hydraulic transmission. It may also be used as a textbook for students of higher technical schools.

COVERAGE: The book is a collection of 20 papers read at the first conference on hydrodynamic transmissions held in Leningrad from 9-11 December, 1957, at which problems of calculation, design, production and operation of hydraulic clutches and hydraulic converters widely used in industry were discussed.

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SOV/179-59-1-3/36

AUTHOR: Kulikov, N. K. (Stalingrad)

TITLE: On a Certain Method of Determination of Established Constrained Oscillations of Non-Linear Systems with One Degree of Freedom (Ob odnom metode issledovaniya ustanovivshikhsya vynuzhdennykh kolebaniy nelineynykh sistem s odnoy stepen'yu svobody)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1959, Nr 1, pp 22-33 (USSR)

ABSTRACT: Existing methods of solving the non-linear differential equations of periodic motion are applicable only for simple harmonic oscillations. A method of finding a solution is presented, which determines the various forms of oscillations with great accuracy. A non-linear equation, Eq.(1.1) can be transformed into Eq.(1.12), when the following analysis is performed (Ref.1). Eq.(1.3) is introduced (t, x - true continuous variables, φ - continuous function of all arguments with continuous individual derivates). The characteristic equation, Eq.(1.4) has no multiple or zero roots. The general solution of Eq.(1.3) will be Eq.(1.5), where the function z^* can be found from Eq.(1.6), and c_i - from a special system of differential equations. The partial solution of Eq.(1.6)

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On a Certain Method of Determination of Established Constrained Oscillations of Non-Linear Systems with One Degree of Freedom

will have a form $z^* = u + \varepsilon$, where u is found from Eq.(1.7), $n(\varepsilon)$ depends on the derivates of functions φ for $x, \dot{x}..., x^{(n)}$ (Eqs.1.8 and 1.9). The function ε forms 3 terms, 2 of which are proportional to the derivate $F_{xx} = d^2F/dx^2$ and $1 - F_{xxx} = d^3x/dt^3$. The formula (1.10) can be derived from Eq.(1.5). To define the equation of motion (relation of x and t), c_1, c_2 and ε should be satisfied by x and t. This is performed by the method of successive approximations. This can be done when $c_1 = c_{10} = \text{const}$ and $c_2 = c_{20} = \text{const}$ and $\varepsilon = 0$. Thus the null approximation will satisfy $F_{xx} \approx F_{xxx} \approx 0$, $F_x \approx \text{const}$. Then the equation of motion can be expressed as Eq.(1.11) and Eq.(1.12). The properties of oscillations described by Eq.(1.12) can be shown from Eqs.(2.1-2.4), where velocity $y = \dot{x}$ is derived. The time of motion is defined from Eq.(2.5).

On a Certain Method of Determination of Established Constrained Oscillations of Non-Linear Systems with One Degree of Freedom

The relationship between velocity and time for $F_{xx} \neq 0$ (non-linear system), can be expressed as an algebraic or transcendental equation, the coefficients of which are periodic functions of time. This can be performed when $y = 0$ in Eq.(2.1). Thus, Eqs.(2.6) and (2.9) are obtained. The amplitude is defined by Eq.(2.10) and its curve is shown in Fig.1 (a - linear, b - rigid, v - soft, g - asymmetric, non-linear systems). The analysis of Eq.(1.12) demonstrates the following possible oscillations (Fig.2): a - continuous, b - intermittent with no jumps, v - intermittent with jumps, g - potential-intermittent with no jumps, d - potential-intermittent with small amplitude, e - potential-intermittent with large amplitude. Three examples of computations are given. Example 1. Simple pseudo-harmonic system is described by Eq.(4.1). In this case $F(x) = x + \alpha x^3$ and $F_x = 1 + 3\alpha x^2$. The equation of motion, Eq.(4.2), is found from Eqs.(1.12) and (4.1). The amplitude is found from Eq.(4.3) by substituting F and F_x into Eq.(2.9). Fig.3 shows the amplitude when $\alpha = 0.5$, $M = 0.1$, $\nu = 0.1$. Figs.4 and 5 represent the graph of $x = x(t)$, without and with jumps respectively (for $p =$

On a Certain Method of Determination of Established Constrained Oscillations of Non-Linear Systems with One Degree of Freedom

= 0.707, 1, 1.21, 1.41 and 1.61). The effect of the frequency of an external force can be defined as follows (Fig.3): 1 - static load, $0 \leqslant p^2 \leqslant p_1^2$, 2 - intermittent oscillations $p_1^2 \leqslant p^2 \leqslant p_2^2$, 3 - potential intermittent oscillations, 4 - near-harmonic oscillations $p_3^2 \leqslant p^2 \leqslant \infty$. The effect of the amplitude of an external force M on the constrained oscillations is shown in Fig.6 as a graph A = A(M) (insert represents continuous change of M from first to M_1). An effect of a non-linear system on the amplitude is shown in Fig.7. Fig.8 shows the amplitudes of 4 fields of frequencies of different forms of oscillators. A field can be seen where 2 amplitudes can exist (Ref.2). Fig.9 shows oscillations of the electric current, 1 - before resonance, 2 - at resonance (Ref.3).

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Example 2. The oscillations of a system with exponential reducing force based on Eqs.(5.1) and (5.2) is considered. The solution of Eq.(5.2) is given as:

$x = A_o + A_1 \sin(pt - \delta)$ (Ref.4). The equation of oscillations, Eq.(5.3) is derived from Eq.(1.12) and (5.1) and the amplitude calculated from Eq.(5.4), which is based on Eqs.(2.9) and (5.1). A graph of the amplitude in Fig.10 is plotted for $N = 1$, $M = 0.1$ and $\nu = 0.1$. Fig.11 shows the jumps for the exponential characteristics $p = 0.33$, 0.74, 1, 1.29 and 1.68.

Example 3. The oscillations of the mathematical pendulum are considered. The motion has a character of one harmonic with the force of friction proportional to the velocity as expressed by Eq.(6.1), where x - angle of deviation from equilibrium, M, p, ν - constant parameters. The reducing force is given by Eq.(6.2). The conditions of the motion are shown in Eq.(6.3). When F and F_x are substituted in Eq.(1.12), the equation of oscillations, Eq.(6.4) will be obtained. The amplitude is calculated from Eq.(6.5). Fig.12 shows the curves of amplitude and Fig.13 - motion with jumps. Generally, the graphs

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can be very useful in the determination of problems of oscillations. As an example, the solution of the equation of motion, Eq.(1.1) derived from Eqs.(1.12) and (2.5), can be found easily when F and F_1 are determined from graphs when points x and t are determined for which these equations become identical. Therefore, it is better to consider in calculations the time of motion from Eq.(2.5) first. Then the amplitude is found from Eq.(2.9). There are 13 figures and 5 references, 4 of which are Soviet and 1 German.

SUBMITTED: July 7, 1958.

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KULIKOV, M.K., doktor tekhn.nauk, prof.

Designing tractive characteristics of tractors with automatic hydraulic transmission. Trakt. i sel'khozmash. no.2:4-6 F '59. (MIRA 12:1)

1. Stalingradskiy mekhanicheskiy institut.
(Tractors)

AUTHOR: Kulikov, N.K., Doctor of Technical Sciences

SOV/113-59-2-11/20

TITLE: The Approximate Computation of Operational Fuel Consumption (Priblizhennyy raschet eksploatatsionnogo raskhoda topliva)

PERIODICAL: Avtomobil'naya promyshlennost', 1959, Nr 2, pp 23-25 (USSR)

ABSTRACT: The author describes a theoretical method of estimating the fuel consumption of automobiles under different working conditions. He gives formulas for calculation of: 1) Hourly fuel consumption (formula Nr 3, p 23). 2) Fuel consumption of a moving automobile at a predetermined gear ratio (formula Nr 7, p 23). 3) Computation of operational fuel consumption (formula Nr 13, p 24). 4) Approximate computation of operational fuel consumption (formula Nr 15, p 24). Formulas for computation of fuel consumption of some Soviet-made automobiles (Moskvich, Pobeda, Zim, Zil-110, Gaz-51, Zil-150) are given. In the conclusion, the author states that this method makes possible the computation of fuel consumption for new models of automobiles and that the obtained theoretical correlations open new possibilities in testing the influence of automobile

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The Approximate Computation of Operational Fuel Consumption SOV/113-59-2-11/20

design parameters upon operational indices. There are 1 table and 3 Soviet references.

ASSOCIATION: Stalingradskiy mekhanicheskiy institut (Stalingrad Mechanical Institute)

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SOV/179-59-2-12/40

AUTHOR: Kulikov, N. K. (Stalingrad)

TITLE: On Determination of the Free Vibration of Non-Linear Systems with One or Two Degrees of Freedom (K issledovaniyu svobodnykh kolebaniy nelineynykh sistem s odnoy i dvumya stepenyami svobody)

PERIODICAL: Izvestiya Akademii nauk SSSR OTN, Mekhanika i mashinostroyeniye, 1959, Nr 2, pp 81-87 (USSR)

ABSTRACT: The author describes a method of obtaining more accurate results of the non-linear period of vibration. The vibrating system with one degree of freedom is shown as Eq (1.1) which can be solved when the relations (1.2), (1.3) and (1.4) are considered, where p - a constant frequency, i - imaginary number, A_1, A_2 - functions (1.5), (1.6) (A_{10} and A_{20} - the values of functions A_1 and A_2 at the initial instant $t = 0$). A system of the differential equations in respect to A_1 and A_2 is defined as Eq (1.7). If, at the initial instant $x = a > 0$, $\dot{x} = 0$ (Eq 2.1), then

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On Determination of the Free Vibration of Non-Linear Systems with One or Two Degrees of Freedom

the state of the system during a period T will be described by Eq (2.2) and for $T = 0$ and $t = T$ the Eq (2.3) will be true (A_{11} and A_{21} - functions A_1 and A_2 for $t = T$). Thus, the general formula can be expressed as Eq (2.4) which can be applied to solve Eq (1.1). The motion can be defined by the formulae (1.2) and (1.3) if A_1 and A_2 are known. These can be determined from Eq (1.5). From Eqs (2.1), (1.2) and (1.3) the expressions (3.1) and (3.2) are obtained, where the parameter p must be determined separately. This can be done from Eq (3.4) for the symmetric system and from Eq (3.5) for the asymmetric system. The extreme deviations of a and b are described by Eq (3.6). The value of p can be calculated from the formula (3.5), the method being illustrated in Table 1, where p_1 is found from Ref 1 and p_2 from the Bessel functions. There are two examples given. In the first one the free vibration of the non-linear system (Eq 4.2) is calculated by means of Eqs (4.3) and (4.7) and the results tabulated in Table 2. In the second example, the vibrations of the mathematical pendulum (Eq 4.10) are calculated (Eqs. 4.11-4.13) and the results given in Table 3. The analysis

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of the vibration of a system with two degrees of freedom can be made in a similar way. When such a system is represented as Eq (5.1), the solution can be written in a general form as Eqs (5.2-5.7) and the values of A_1, A_2, A_3 and A_4 can be determined from Eq (5.8). The solution by means of zero approximation is based on the conditions $t = 0$, $x = a$, $x = 0$, $\ddot{x} = -F(a)$, $\dddot{x} = 0$. Thus the Eqs (6.1) to (6.3) can be derived and the function $F(x)$ defined as Eq (6.4). There are 3 tables and 10 Soviet references.

SUBMITTED: May 18, 1958.

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16(1)

AUTHOR: Kulikov, N. K. (Stalingrad)

SOV/179-59-4-7/40

TITLE: Conditions for the Existence and Finding of the Parameters of Periodic Motions of Autonomous Systems

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye tekhnicheskikh nauk. Mekhanika i mashinostroyeniye, 1959, Nr 4, pp 56-62 (USSR)

ABSTRACT: In his paper (Ref 1) the author described a method of solving differential equations, which in some cases yields accurate results, and approximate results in others. This method is further developed and applied to autonomous systems of n-th order. The properties of periodic solutions are investigated. The necessary and sufficient conditions for the existence of periodic solutions are ascertained. A method of finding the approximate values of the parameters of nonlinear periodic motions is pointed out. According to the paper (Ref 1), the periodic solution of the zeroth approximation must be available for the solution of the problem of first approximation, or the zeroth approximation must be given in the form of a simple harmonic motion. On the basis of the first approximation, the subsequent approximation can be obtained. The problem of the

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Conditions for the Existence and Finding of the Parameters of Periodic Motions of Autonomous Systems

convergence of successive approximations remains open for the general case; the examples put forward show, however, the high accuracy of computations. The solutions of the following problems are put forward as examples of application of the conditions ascertained for the periodicity: linear differential equations (2.1) with constant coefficients; free oscillations of a system (2.3) with a degree of freedom, and the solutions of the equation (2.10) for natural oscillations of the Van der Pohl type. The solutions are given in first approximation. There are 3 Soviet references.

SUBMITTED: August 13, 1958

KULIKOV, N.K., doktor tekhn.nauk; ZLOTIN, G.N.

Coefficient of unsteady operating conditions of an engine. Avt. prom. no.4:16-17 Ap '60. (MIRA 13:6)
1. Stalingradskiy mekhanicheskiy institut.
(Automobiles--Engines--Testing)

82501

1. 3400 S/040/60/024/04/19/023
C 111/ C 333

AUTHOR: Kulikov, N. K. (Stalingrad)

TITLE: Approximative Solution of Linear Differential Equations of Second Order With Variable Coefficients

PERIODICAL: Prikladnaya matematika i mekhanika, 1960, Vol. 24, No. 4, pp. 755-759

TEXT: The present paper is the further development of the method proposed by the author in (Ref.1). The general solution of the equation

(1.1) $\alpha y'' + f(x)\, y' + F(x)y = 0 \quad (y' = \frac{dy}{dx},\ y'' = \frac{d^2y}{dx^2},\ \alpha = \text{const})$

is sought with the set up

(1.2) $\psi = A_1 e^{r_1 x} + A_2 e^{r_2 x},\ y' = A_1 r_1 e^{r_1 x} + A_2 r_2 e^{r_2 x},\ y'' = A_1 r_1^2 e^{r_1 x} + A_2 r_2^2 e^{r_2 x}$

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Approximative Solution of Linear Differential Equations of Second Order With Variable Coefficients

where r_1, r_2 are the roots of the equation

(1.3) $r^2 + mr + p = 0$,

m and p are appropriately determined in the course of the calculation, and Ψ is defined by

(1.5) $$\Psi = \left[\frac{f(x) - m}{p}\right] y' + \frac{F(x)}{p} y$$.

For the determination of the functions A_1 and A_2 the author obtains a system of differential equations which is solved by successive approximation. He proves the convergence of this process and shows by an example that in several cases already the initial approximation gives a satisfactory result.

There are 3 references: 2 Soviet and 1 French.

SUBMITTED: December 9, 1959

Card 2/2

KULIKOV, N.K., doktor tekhn.nauk, prof.

Dynamic elements in the skidding of a tractor. Izv.vys.ucheb. zav.; mashinostr. no.2:111-118 '61. (MIRA 14:3)

1. Moskovskoye vysshaye tekhnicheskoye uchilishche imeni.
(Tractor--Dynamics)

32733
S/140/61/000/004/005/013
C111/C222

16.3400

AUTHOR: Kulikov, N. K.

TITLE: A method for the solution of ordinary linear differential equations with variable coefficients

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, no. 4, 1961, 50-56

TEXT: It is shown that the general solution of

$$f_n(x)y^{(n)} + f_{n-1}(x)y^{(n-1)} + \ldots + f_1(x)y' + f_0(x)y = f(x) \qquad (1.1)$$

where $f(x)$, $f_i(x)$ are continuous and continuously differentiable on $x_0 \leq x \leq x_k$, $f_0(x) \neq 0$, $f_n(x) \neq 0$, is representable in the form

$$y = \frac{1}{f_0(x)}\left\{f(x) - [f_1(x)z' + \cdots + f_n(x)z^{(n)}] - \sum_{j=1}^{n}[f_1(x)r_j + \cdots\right.$$

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A method for the solution of . . .

$$\left.\begin{aligned}
&\cdots + f_n(x)\,r_j^n\Big]A_{j0}e^{r_jx} - \sum_{j=1}^{n}\Big[(-1)^{j+1}\frac{d_j}{D}\,e^{r_jx}\int_{x_0}^{x}\mu e^{-r_jx}\,dx\Big]\times\\
&\qquad\times\big[f_1(x)\,r_j + \cdots + f_n(x)\,r_j^n\big]\Big\},\\
&y' = z' + \sum_{j=1}^{n}A_{j0}r_je^{r_jx} + \sum_{j=1}^{n}(-1)^{j+1}\frac{d_j}{D}\,r_je^{r_jx}\int_{x_0}^{x}\mu e^{-r_jx}\,dx,\\
&\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\\
&y^{(n)} = z^{(n)} + \sum_{j=1}^{n}A_{j0}r_j^n\,e^{r_jx} + \sum_{j=1}^{n}(-1)^{j+1}\frac{d_j}{D}\,r_j^n\,e^{r_jx}\int_{x_0}^{x}\mu e^{-r_jx}\,dx.
\end{aligned}\right\}\qquad(1.2)$$

Here A_{jo} are constants of integration, r_j are the roots of the characteristic equation

Card 2/6 $a_nr^n + a_{n-1}r^{n-1} + \ldots + a_1r + a_o = 0$ (1.3)

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A method for the solution of . . .

z is the solution of

$$a_n z^{(n)} + a_{n-1} z^{(n-1)} + \ldots + a_1 z' + a_o z = f(x) \qquad (1.4)$$

D is

$$D = \begin{vmatrix} 1 & \ldots & 1 \\ r_1 & \ldots & r_n \\ \vdots & & \vdots \\ r_1^{n-1} & \ldots & r_n^{n-1} \end{vmatrix} = \text{const} \neq 0 \qquad (1.5)$$

d_j is obtained from D by cancelling in D the first row and the j-th column; μ is defined by

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$$\mu = 0 + \theta_1 y' + \cdots + \theta_n y^{(n)},$$

$$\theta = \frac{f'(x)}{a_0} - \frac{a_n}{a_0}\left[\left(\frac{f(x)}{f_n(x)}\right)' - \frac{f(x)}{f_0(x)}\left(\frac{f_0(\lambda)}{f_n(x)}\right)'\right], \qquad (1.7)$$

$$\theta_j = \left[-\left(\frac{f_0(x)}{f_n(x)}\right)'\frac{f_j(x)}{f_0(x)} + \left(\frac{f_j(x)}{f_n(x)}\right)' + \frac{f_{j-1}(x)}{f_n(x)}\right]\frac{a_n}{a_0} - \frac{a_{j-1}}{a_0},$$

$$j = 1, 2, \ldots, n.$$

It is proved that for given initial conditions the integral equations (1.2) have a unique solution which can be determined by a successive approximation. The constants $a_n, \ldots, a_0$ in (1.3) are calculated according to the formulas

$$a_n = \frac{f'(x_0)}{\left[\left(\frac{f(x)}{f_n(\lambda)}\right)_0' - \frac{f(x_0)}{f_0(x_0)}\left(\frac{f_0(x)}{f_n(x)}\right)_0'\right]},$$

$$\frac{a_{j-1}}{a_n} = \left[-\left(\frac{f_0(\lambda)}{f_n(x)}\right)_0'\frac{f_j(x_0)}{f_0(x_0)} + \left(\frac{f_j(x)}{f_n(x)}\right)_0' + \frac{f_{j-1}(x_0)}{f_n(\lambda_0)}\right]. \qquad (2.1)$$

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A method for the solution of . . .

if $f(x) \equiv 0$ then it is put $a_n = 1$. An improvement can be reached by an averaging over the interval and putting

$$a_j = \frac{1}{(x_k - x_0)} \int_{x_0}^{x_k} \bar{a}_j dx \qquad (2.2)$$

where

$$\bar{a}_n = \frac{f'(x)}{\left[\left(\frac{f(x)}{f_n(x)}\right)' - \frac{f(x)}{f_0(x)}\left(\frac{f_0(x)}{f_n(x)}\right)'\right]},$$

$$\bar{a}_{j-1} = \left[-\left(\frac{f_0(x)}{f_n(x)}\right)'\frac{f_j(x)}{f_0(x)} + \left(\frac{f_j(x)}{f_n(x)}\right)' + \frac{f_{j-1}(x)}{f_n(x)}\right] a_n.$$

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A method for the solution of . . .

As an example the author solves the equation $y'' - xy = 0$ and compares the approximate solution with the strong one.

There is 1 figure and 3 Soviet-bloc references.

ASSOCIATION: Stalingradskiy mekhanicheskiy institut (Stalingrad Mechanical Institute)

SUBMITTED: February 24, 1959

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X

LOGOV, Leonid Maksimovich, kand. tekhn. nauk; KULIKOV, N.K., doktor tekhn. nauk, retsenzent; PAL'KO, O.S., inzh., red.; EL'KIND, V.D., tekhn. red.

[Hydraulic reversible multi cilinder engine] Gidravlicheskii obratimyi mnogotsilindrovyi dvigatel'. Moskva, Mashgiz, 1962. 66 p. (MIRA 15:4)

(Hydraulic engines)

45646

S/875/62/000/000/010/010
D237/D308

16.3400

AUTHOR: Kulikov, N.K.

TITLE: Solution of ordinary linear differential equations with variable coefficients

SOURCE: Nekotoryye voprosy mekhaniki; sbornik statey. Ed. by V.I. Feodos'yev. Moscow, Oborongiz, 1962, 138-204

TEXT: The equation is

$$f_n(x)y^{(n)} + f_{n-1}(x)y^{(n-1)} + \ldots + f_1(x)y' + f_0(x)y = f(x). \quad (1.1)$$

where x,y and f(x), $f_0(x)$,... $f_n(x)$ are real, if a x b, f(x), $f_0(x)$,... $f_n(x)$ and their derivatives are continuous, and $f_0(x)$ and $f_n(x) \neq 0$. Under the above conditions and in agreement with known existence and uniqueness theorems, the solution $y = y(x)$ will, for the given initial conditions $x = x_0$, $y = y_0$, $y = y_0'$,... $y^{(n-1)} = y_0^{(n-1)}$ be a single-valued continuous function. The author proves:

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Solution of ordinary linear ...

Theorem 1: The general solution of (1.1) can be expressed in terms of integral equations containing arbitrary constants of integration, the roots of characteristic equation

$$a_n r^n + a_{n-1} r^n + \ldots + a_1 r + a_0 = 0 \qquad (1.3)$$

where $a_0, \ldots a_n$ are chosen so that $r_j \neq \infty$ or 0 and are not many-valued, and a particular solution of

$$a_n z^{(n)} + a_{n-1} z^{(n)} + \ldots + a_1 z' + a_0 z = f(x). \qquad (1.4)$$

Theorem 2: The general solution of (1.1) can be represented by

$$\left.\begin{aligned} y &= C + z + \int_{x_0}^{x} \sum_{j=1}^{n} A_{j0} r_j e^{r_j x}\, dx + \\ &+ \int_{x_0}^{x} \left[\sum_{j=1}^{n} (-1)^{j+1} \frac{d_j}{D} r_j e^{r_j x} \int_{x_0}^{x} \varphi e^{-r_j x}\, dx \right] dx; \\ y' &= z' + \sum_{j=1}^{n} A_{j0} r_j e^{r_j x} + \end{aligned}\right| \qquad (1.8)$$

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olution of ordinary linear ...

$$+\sum_{j=1}^{n}(-1)^{j+1}\frac{d_j}{D}r_j e^{r_j x}\int_{x_0}^{x}\mu e^{-r_j x}\,dx,$$

$$\cdots\cdots\cdots\cdots\cdots\cdots$$

$$y^{(n)}=z^{(n)}+\sum_{j=1}^{n}A_{j0}r_j^n e^{r_j x}+$$

$$+\sum_{j=1}^{n}(-1)^{j+1}\frac{d_j}{D}r_j^n e^{r_j x}\int_{x_0}^{x}\mu e^{-r_j x}\,dx. \qquad (1.8)$$

where C is an integrating constant. Eq. (1.8) possesses unique solutions which can be found by the method of successive approximations. Indeterminate parameters $a_0,\ldots,a_n$ appear in (1.8) and the author gives a method of choosing them so as to obtain high accuracy using only lower approximations. The method proposed has the advantage that the unknown function and its n derivatives are found simultaneously. This makes it suitable for solving the boundary problems. The method is illustrated by solving equations of the 1st, 2nd and 3rd order, and by investigation of the stability of compressed pistons of variable cross section. There are 2 figures and 4 tables.

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37148

S/179/62/000/001/023/027
E081/E535

24.4200

AUTHOR: Kulikov, N.K. (Moscow)

TITLE: Approximate method of investigating the stability of a bar of variable section

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Mekhanika i mashinostroyeniye, no.1, 1962, 161-164

TEXT: The determination of the critical stress of a bar compressed axially requires the solution of the equation

$$y'' + P\varphi(x)y = 0 \quad \left(P = \text{const} > 0,\ \varphi(x) = \frac{1}{EI_x}\right) \qquad (1.1)$$

where P is the compressive force, $\varphi(x)$ is the rigidity of the bar section distance x along its length, y is the transverse deflection of the bar, E is Young's modulus and I is the moment of inertia of cross-section. Using the method described previously by the author (Ref.1: PMM, 1960, v.24, no.4), this equation is solved approximately to give the critical compressive force in the form

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$$P = \eta \frac{\pi^2 EI}{\ell^2} \qquad (2.10)$$

where EI is the maximum rigidity of the bar. Values of η are calculated and tabulated for bars on hinged supports, varying in rigidity along their lengths in accordance with the following laws:

$$\varphi(x) = \frac{1}{EI} \exp\left(-\frac{\nu x}{\ell}\right), \qquad \nu = \text{const} \leqslant 0$$

$$\varphi(x) = \frac{1}{EI\lambda x^{\nu}}, \quad \lambda = \left\{\frac{1}{\ell}\left[1 - \left(\frac{i}{I}\right)^{1/\nu}\right]\right\}^{\nu}$$

where i is the smallest moment of inertia of cross-section. The stability of a cantilever beam is also briefly considered. There are 2 tables.

SUBMITTED: November 17, 1961

Card 2/2

KULIKOV, N.K., doktor tekhn.nauk, prof.; MIRONOV, G.N., assistent

Experimental investigation of radial movement of the piston in an engine cylinder. Izv.vys.ucheb.zav.; mashinostr. no.8: 185-191 '63. (MIRA 16:11)

1. Moskovskoye vysshoye tekhnicheskoye uchilishche imeni Baumana (for Kulikov). 2. Volgogradskiy mekhanicheskiy institut (for Mironov).

LAPTEV, Yu.N., kand. tekhn.nauk; KULIKOV, N.K., doktor tekhn. nauk, retsenzent; IL'ICHEV, Ya.T., kand. tekhn. nauk, red.; SMIRNOVA, G.V., tekhn. red.

[Single-stage hydrodynamic torque converters for motor vehicles and tractors] Avtotraktornye odnostupenchatye gidrodinamicheskie transformatory. Moskva, Mashgiz, 1963. 218 p. (MIRA 17:3)

KULIKOV, N.K., doktor tekhn. nauk, prof.

Closed type solution of ordinary linear differential equations with variable coefficients. Vych. tekh. [MVTU] no.3:17-24 '63.

Closed type solution of a certain class of ordinary differential equations with variable coefficients. Vych. tekh. [MVTU] no.3:44-47 '63. (MIRA 17:2)

KULIKOV, N. K. (Moscow)

"Neue analytische Methoden zur Untersuchung nichtlinearer Schwingungen."

report submitted for 3rd Conf on Nonlinear Oscillations, E. Berlin, 25-30 May 64.

L 2581-66 EWT(d) IJP(c)

ACCESSION NR: AP5025435 UR/0140/65/000/004/0075/0083
517.917

AUTHOR: Kulikov, N. K. (Moscow)

TITLE: Qualitative quantitative study of solutions of ordinary linear homogeneous differential equations of second order

SOURCE: IVUZ. Matematika, no. 4, 1965, 75-83

TOPIC TAGS: stability, differential equation

ABSTRACT: The author considers the equation

$$y'' + f_1 y' + f_0 y = 0, \qquad (1)$$

where f_1 and f_0 are continuous real twice differentiable functions of $x \in [a,b]$. At all points of the interval he assumes satisfaction of

$$f_0 \neq 0, \qquad (2)$$

$$f_0 + f_1' > 0, \qquad (3)$$

$$q^2 = f_0 + f_1' - \frac{1}{4}\left(f_1 + \frac{f_0'}{f_0}\right)^2 > 0. \qquad (4)$$

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L 2581-66

ACCESSION NR: AP5025435

Given are initial conditions $y(x_0) = y_0$, $y'(x_0) = y'_0$. He introduces special determining functions specifying the nature of the solution and two of its derivatives, and obtains sufficient conditions for their decrease and increase on finite and infinite intervals. He obtains quantitative estimates of the nature of the solution. Results are compared with earlier ones. Orig. art. has: 27 formulas.

ASSOCIATION: none

SUBMITTED: 17Jan64 ENCL: 00 SUB CODE: MA

NO REF SOV: 004 OTHER: 001

Card 2/2

KULIKOV, N.K., doktor tekhn.nauk, prof.

Machine manufacture and mathematics. Vest.mashinostr. 46 no.1:78-80 Ja '66. (MIRA 19:1)

112-57-8-17283

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1957, Nr 8, p 197 (USSR)

AUTHOR: Kulikov, N. N., and Nikolayev, Ye. A.

TITLE: Tube Shaker for Interelectrode Short-Circuit Test (Ustanovka dlya ispytaniya radiolamp na mezhduelektrodnyye korotkiye zamykaniya v usloviyakh vibratsii)

PERIODICAL: Inform.-tekhn. sb. M-vo radiotekhn. prom-sti SSSR (Technical Information Collection, Ministry of the Radio-Engineering Industry, USSR), 1955, Nr 6, pp 3-8

ABSTRACT: The outfit permits checking radio tubes for permanent or temporary interelectrode contacts under conditions of mechanical vibration. If an interelectrode short occurs in the tube being tested, a visual signal appears at the control desk and stays visible until the power supply is shut off. Performance of outfits designed with polarized type RP-4 relays are compared with an electromagnetic type RSM relay and with type TKh-1 grid-glow tube. It is pointed out that the TKh-1 grid-glow tube outfit has the highest sensitivity.

I. Ye. P.

Card 1/1

KULIKOV, N.N.; MAKHAYEV, N.Ye.

Ionospheric observations during the solar eclipse of Feb. 15, 1961. Geomag. i aer. 1 no.3:441-443 My-Je '61. (MIRA 14:9)

1. Institut geofiziki, Ural'skiy filial AN SSSR.
(Ionosphere) (Eclipses, Solar--1961)

11800

S/123/61/000/013/015/025
A052/A101

AUTHORS: Kulikov, N. N.; Gorodetskiy, Yu. S.; Danku, Ye. P.

TITLE: Anticorrosion coating on aluminum

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 13, 1961, 102, abstract 13B726 ("Uch.zap. Kishinevsk. un-t", 1960, no. 56, 245-248)

TEXT: The results of an investigation of the oxidation of aluminum are reported. The oxidation has been performed in electrolyte being a mixture of sulfuric and zirconyl sulfuric acids. As a sample AM aluminum wire of 2mm diameter has been taken. Oxidation has been performed after a careful preliminary preparation and electropolishing. The electrolyte for anodizing consists of (in g/l): zirconylic acid (240), sulfuric acid (185), water (375). The treatment is done at the anode density of 10-13 a/dm^2, voltage of 18-20 v, temperature of 35-38°C, duration of 30 min.

/B

N. Savina

[Abstracter's note: Complete translation]

Card 1/1

KULIKOV, N.N., inzhener (Molotov)

Compact loading of prefabricated house elements. Zhel. dor. transp. 38 no.9:85 S '56. (MLRA 9:10)

(Railroads--Freight)

POTAP'YEVSKIY, A.G.; KORITSKIY, V.A.; Prinimali uchastiye: KOCHEV, V.S.; MAKAROV, M.D.; VAYNSHTEYN, A.L.; KULIKOV, N.N.; SMIRNOVSKAYA, T.V.; PAKHAL, S.M.; FEDOTOVA, L.P.; TATARINOV, G.V.

Ob-458m attachment for welding in CO_2 using PS-300, PSO-300, and PS-500 transformers. Avtom.svar. 15 no.10:68-70 O '62. (MIRA 15:11)

(Electric welding—Equipment and supplies)

KULIKOV, N.N., mladshiy nauchnyy sotrudnik

Core from the area of Peter I Island. Inform. biul. Sov. antark. eksp. no.35:14-17 '62. (MIRA 16:11)

1. Nauchno-issledovatel'skiy institut geologii Arktiki.

KULIKOV, N.N., mladshiy nauchnyy sotrudnik

Discovery of moraine material on a broken piece of an inverted iceberg. Inform. biul. Sov. antark. eksp. no.33:15-19 '62. (MIRA 16:2)

1. Nauchno-issledovatel'skiy institut geologii Arktiki.
(West Shelf Ice region—Moraines)

S/874/62/000/002/009/019
D218/D308

AUTHOR: Kulikov, N.N.

TITLE: The state of the ionosphere above Sverdlovsk during the International Geophysical Year

SOURCE: Akademiya nauk SSSR. Ural'skiy filial. Institut geofiziki. Trudy. no. 2, 1962. Geofizicheskiy sbornik, no. 3, 145-161

TEXT: Diurnal, seasonal and 11-year variations of the main ionospheric characteristics, and some irregular phenomena in the ionosphere above Sverdlovsk during the IGY are discussed. The analysis is based on the data obtained by the Sverdlovskaya ionosfernaya stantsiya Instituta geofiziki filiala AN SSSR (Sverdlovsk Ionospheric Station of the Geophysics Institute of the Ural' branch of the AS USSR). The diurnal and seasonal variations in the ionospheric characteristics during the above period were found to correspond to the behavior of the middle-latitude ionosphere. On isolated days corresponding to considerable disturbances, the ionosphere assumed proper-

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ties characteristic of high latitude regions (type a sporadic layer, increased absorption). In the summer, the F layer was occasionally found to divide into three layers (F1, F1.5, F2). This phenomenon is characteristic for low latitudes. The ionization maximum for 1957 and 1958 was found to exceed the ionization maximum for 1947 (as deduced from monthly medians of the midday values of the critical frequencies). The largest ionization-maximum peak during the above cycle of observations was found to occur at 11 hr on October 26, 1957 when the F2 critical frequencies had a maximum value of 17.5 Mc/sec which corresponded to an electron density of $3.79 \times 10^6 cm^{-3}$. The largest diurnal amplitude of oscillation in the critical frequencies during the solar cycle was found to be 13.4 Mc/sec (F2 layer) and was observed on December 29, 1957 (3.4 - 16.8 Mc/sec). In spite of the fact that the biggest peak in the critical frequencies was noted in October, 1957, the maximum deduced from the mean annual midday values of the critical frequencies was found to occur in 1958. The number of ionospheric disturbances during which the ionization density fell below the mean value was greater than the number of disturbances with the opposite deviation of ionization density.